Southern Appalachian Creature Feature Podcasts

Cloacoal breathing - how do bog turtles stay under water for so long?

Greetings and welcome to the Southern Appalachian Creature Feature.

Bog turtles, befitting their name, live in Appalachian bogs, where they like to burrow into the mud and muck of the wetland's bottom, some of it quite thick and sticky. However, bog turtles, like all turtles, are air breathers, which begs the question if a bog turtle is two feet deep in mud and muck, how can it breathe?

Some of us look at birds and wish we could fly. Others watch dolphins and wish we could swim so easily, gracefully, and swiftly. And there may be a few who look at a bog turtle and wish they could breathe with their butts.

Unlike most mammals, reptiles, amphibians, and birds don't have a separate rectum and urethra, but rather a single organ, called a cloaca, serves the intestinal, urinary, and genital tracts. Some aquatic turtles, including the bog turtle, have openings off the cloaca, called bursae, which are densely laced with blood vessels. Water enters these chambers and the oxygen is removed, allowing the turtle to wander at length in the murky depths of Appalachian bogs. The ability to breathe at the end of your digestive tract isn't limited to aquatic turtles, but rather a feat that can be pulled off by animals as diverse as sea cucumbers and young dragonflies which spend their nymph stage as aquatic insects.

For WNCW and the U.S. Fish & Wildlife Service, this is Gary Peeples.